

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

Site Location:

Site ID: 54

Site Name: Little Nottoway River S.R. 603 nr Blackstone, VA

County: Nottoway

Nearest City: Blackstone

State: VA

Latitude: 370516

Longitude: 780323

USGS Station ID: 2044280

Route Number: 603

Route Class: State

Service Level: Mainline

Route Direction: NA

Highway Mile Point:

Stream Name: Little Nottoway River

River Mile:

Contact:
USGS
3600 West Broad Street Suite 606
Richmond, VA 23230
(804) 771-2427

Publication:
Hayes, Donald C., 1993, Site
Selection and Collection of Bridge-
Scour Data in Delaware, Maryland,
and Virginia:
U.S. Geological Survey
Water-Resources Investigations
Report 93-4017, 23 p.

Site Description:

This site is located in the headwaters of the Nottoway River, just north of the intersection of State Highways 602 and 603, and 2.5 miles west of Blackstone, Virginia. The bridge, 210 ft long and 24 ft wide, is supported by three concrete piers on pile foundations. The tapered piers are spaced 52 ft apart. The piers are numbered from right to left.

Elevation Reference

Datum: MSL

MSL (ft):

Description of Reference Elevation:

RM1--Elevation 272.70 ft MSL. Chiseled square painted blue in left upstream end of headwall of culvert on Route 603, 30 ft south of junction of Route 603 and Route 602.

RM2--Elevation 279.39 ft MSL. Chiseled notch painted blue on upstream handrail post at centerline of main channel, 57 ft north of south end of bridge and 263 ft south of north end of bridge. Marked with a chiseled arrow.

RM3--Elevation 279.36 ft MSL. Chiseled notch painted blue on downstream

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

handrail post at centerline of main channel approximately 50 ft north of south end of bridge and 270 ft south of north end of bridge. Marked with a chiseled arrow.

BM--Elevation 451.239 ft MSL. On line 104 located 3.0 miles northwest of Blackstone, Va. C&GS reference mark disk at the NEBO station site: 65.28 ft south of the station, 55.2 ft east of the north corner of a frame house and just east of a wire fence line, set in the top of a concrete post, flush. Stamped NEBO NO 1 1965.

Stream Data

Drainage Area (sq mi):		Floodplain Width:	Narrow
Slope in Vicinity(ft/ft):	0.002	Natural Levees:	Little
Flow Impact:	Straight	Apparent Incision:	Apparent
Channel Evolution	Unknown	Channel Boundary:	Alluvial
Armoring:	None	Banks Tree Cover:	High
Debris Frequency:	Rare	Sinuosity:	Straight
Debris Effect:	Local	Braiding:	None
Stream Size:	Small	Anabranching:	None
Flow Habit:	Perennial	Bars:	Narrow
Bed Material:	Sand	Stream Width Variability:	Equiwidth
Valley Setting:	Moderate		

Roughness Data

Manning's n Values

	Left Overbank	Channel	Right Overbank
High:	0.08	0.035	0.08
Typical		0.035	
Low:		0.035	

Bed Material

Measurement Number	Yr	Mo	Dy	Sampler	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)	SP	Shape	Cohesion
1	1991	4	10	BOTTLE	1.9	1.3	0.69	0.35	2.65		Non-Cohesive

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

Bed Material Comments

Measurement No: 1

Bridge Data

Structure No: 6171

Length(ft): 210

Width(ft): 24

Number of Spans: 4

Vertical Configuration: Unknown

Low Chord Elev (ft): 273.83

Upper Chord Elev (ft): 275.71

Overtopping Elev (ft): 276.01

Skew (degrees): 0

Guide Banks: None

Waterway Classification: Main

Year Built: 1960

Avg Daily Traffic:

Plans on File: Yes

Parallel Bridges No

Upstream/Downstream: Unknown

Continuous Abutment: No

Distance Between Centerlines:

Distance Between Pier Faces:

Bridge Description:

The bridge, 210 ft long and 24 ft wide, is supported by three concrete piers on pile foundations. The piers are spaced 52 ft apart. The piers, 28-ft continuous webs resting on pile caps, taper from 2.25 ft wide at the base to 1.5 ft wide at the top. The piers are numbered from right to left.

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

Abutment Data

Left Station: 0
Right Station: 205
Left Skew (deg): 0
Right Skew (deg) 0
Left Abutment Length (ft): 48
Right Abutment Length (ft) 46
Left Abutment to Channel Bank (ft): 120
Right Abutment to Channel Bank (ft):
Left Abutment Protection:
Right Abutment Protection
Contracted Opening Type: IV
Embankment Skew (deg): 0
Embankment Slope (ft/ft): 1.5
Abutment Slope (ft/ft)
Wingwalls: Yes
Wingwall Angle (deg): 30

Pier Data

Pier ID	Bridge Station(ft)	Alignment	Highway Station	PierType	# Of Piles	Pile Spacing(ft)
1	51	0	12480	Single	0	
2	103	0	12530	Single	0	
3	155	0	12580	Single	0	

Pier ID	Pier Width(ft)	Pier Shape	Shape Factor	Length(ft)	Protection	Foundation
1	2.25	Round		28	None	Piles
2	2.25	Round		28	None	Piles

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

3	2.25	Round	28	None	Piles
Pier ID	Top Elevation(ft)	Bottom Elevation(ft)	Foot or Pile Cap Width(ft)	Cap Shape	File Tip Elevation(ft)
1	261.95	258.95	5	Square	243
2	262.43	259.43	5	Square	241
3	262.92	259.92	5	Square	246

Pier Description

Pier ID 1

The piers, 28-ft continuous webs resting on pile caps, taper from 2.25 ft wide at the base to 1.5 ft wide at the top. Ten piles support each pier.

Pier ID 2

See pier 1.

Pier ID 3

See pier 1.

Pier Scour Data

Pier ID	Date	Time	USOrDS
1	5/2/89	13:00	Upstream
1	8/24/90	10:30	Upstream
1	8/24/90	14:30	Upstream
1	3/29/91	12:30	Upstream
1	3/29/91	15:30	Upstream
1	3/29/91	17:30	Upstream
2	5/2/89	13:00	Upstream
2	8/24/90	10:30	Upstream
3	5/2/89	13:00	Upstream

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

3	8/24/90	10:30	Upstream
3	8/24/90	14:30	Upstream
3	3/29/91	17:30	Upstream

Pier ID	Scour Depth	Accuracy (ft)	Side Slope (ft/ft)	TopWidth (ft)	Apprch Vel (ft/s)	Apprch Depth(ft)	Effective Pier Width	Skew to Flow(deg)
1	1.3	1	7	18	2.15	5.6	2.25	0
1	1.2	1	4	9	2.25	5.9	2.25	0
1	0.7	1	6.5	9	2.1	5.1	2.25	0
1	1.3	1	3.5	9	1.26	2.9	2.25	0
1	1.4	1	3	9	1.7	4.6	2.25	0
1	1.2	1	4	10	1.72	5.3	2.25	0
2	1.8	1	5.5	9	0.62	3.2	2.25	0
2	2.4	1	1.5	10	1.06	2.9	2.25	0
3	1.6	1	7	22	0.79	2.9	2.25	0
3	1.3	1	12	30	1.06	2.6	2.25	0
3	1.4	1	5	14	0.62	2	2.25	0
3	1.5	1	6	18	1.63	3.5	2.25	0

PierID	Sediment Transport	Bed Material	BedForm	Trough (ft)	Crest (ft)	Sigma	Debris Effects
1	Unknown	Unknown	Unknown			1.9	Unknown
1	Unknown	Unknown	Unknown			1.9	Unknown
1	Unknown	Unknown	Unknown			1.9	Unknown
1	Unknown	Unknown	Unknown			1.9	Unknown
1	Unknown	Unknown	Unknown			1.9	Unknown
1	Unknown	Unknown	Unknown			1.9	Unknown
2	Unknown	Unknown	Unknown			1.9	Unknown
2	Unknown	Unknown	Unknown			1.9	Unknown
3	Unknown	Unknown	Unknown			1.9	Unknown
3	Unknown	Unknown	Unknown			1.9	Unknown
3	Unknown	Unknown	Unknown			1.9	Unknown
3	Unknown	Unknown	Unknown			1.9	Unknown

PierID	D95 (mm)	D84 (mm)	D50 (mm)	D16 (mm)
1	1.9	1.3	0.69	0.35

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

1	1.9	1.3	0.69	0.35
1	1.9	1.3	0.69	0.35
1	1.9	1.3	0.69	0.35
1	1.9	1.3	0.69	0.35
1	1.9	1.3	0.69	0.35
2	1.9	1.3	0.69	0.35
2	1.9	1.3	0.69	0.35
3	1.9	1.3	0.69	0.35
3	1.9	1.3	0.69	0.35
3	1.9	1.3	0.69	0.35
3	1.9	1.3	0.69	0.35

Pier Scour Comments

Pier ID 1 **Time:** 13:00 **US/DS:** Upstream

Accuracy of local scour estimate is probably 1 foot. Estimate is maximum scour for this cross section only and may not represent the maximum local scour at the pier.

Pier ID 1 **Time:** 10:30 **US/DS:** Upstream

Pier ID 1 **Time:** 14:30 **US/DS:** Upstream

Pier ID 1 **Time:** 12:30 **US/DS:** Upstream

Pier ID 1 **Time:** 15:30 **US/DS:** Upstream

Pier ID 1 **Time:** 17:30 **US/DS:** Upstream

Pier ID 2 **Time:** 13:00 **US/DS:** Upstream

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

Pier ID	2	Time:	10:30	US/DS:	Upstream
Pier ID	3	Time:	13:00	US/DS:	Upstream
Pier ID	3	Time:	10:30	US/DS:	Upstream
Pier ID	3	Time:	14:30	US/DS:	Upstream
Pier ID	3	Time:	17:30	US/DS:	Upstream

Abutment Scour

Contraction Scour

BSDMS Summary Report

54 Little Nottoway River S.R. 603 nr Blackstone, VA

Stage and Discharge Data

Peak Discharge					Flow	Peak Stage					Stage	Water	Return	
year	mo	dy	hr	mi	(cfs)	Qacc	year	mo	dy	hr	mi	(ft)	Temp (C)	Period(yr)

Hydrograph

Hydrograph	Year	Month	Day	Hr	Min	Sec	Stage(ft)	Discharge
Number								(cfs)

Supporting Files
